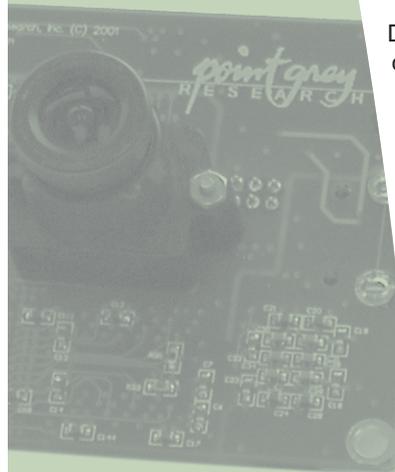


# IEEE-1394 digital camera

- ✓ 6 Pin IEEE-1394 interface
- ✓ External trigger
- ✓ Automatic inter-camera synchronization
- ✓ Computer controlled camera parameters
- ✓ Image acquisition software
- ✓ C/CS mount or micro-lenses



Dragonfly is an OEM-style IEEE-1394 board level camera specifically designed for industrial machine vision tasks. Dragonfly was created to provide maximum control and flexibility for digital imaging applications. Through the IEEE-1394 interface, the computer communicates digitally with the camera, allowing reliable transmission of images and software control of camera parameters.

## Network capable

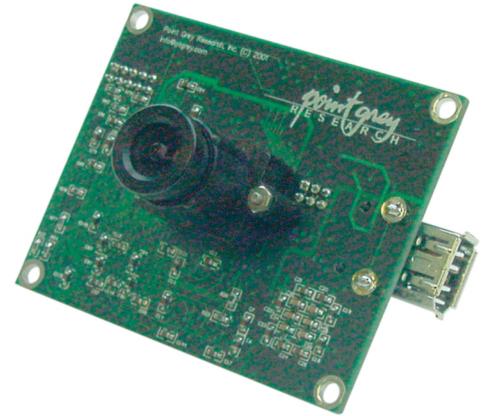
IEEE 1394 hubs can be used to connect multiple Dragonfly cameras on the same bus. Simply by connecting the hub to a PC host it is possible to simultaneously acquire images from any one of the cameras. DCAM 1.30 specification allows up to 16 cameras on the same bus. Multiple dragonfly cameras can be configured to provide uncompressed streaming video simultaneously.

## Camera synchronization - captures multiple points of view

When more than one Dragonfly camera is present on the IEEE 1394 bus, the cameras automatically synchronize their acquisition time to within 20 $\mu$ s. This feature is particularly important in applications where an image of an object needs to be acquired from multiple points of view at exactly the same time.

## External trigger - synchronizes image acquisition

The Dragonfly camera has an external trigger feature that provides control over timing of the image acquisition. The external trigger feature is defined by the IEEE-1394 based Digital Camera Specification (ver 1.30). This is used in applications where the image acquisition has to be synchronized with an outside event.



dragonfly

## Firmware upgrading

Dragonfly allows users to upgrade its firmware through the IEEE-1394 interface. Our upgrade software allows camera features to be easily upgraded in-field. For example, extended exposure time and image sub-sampling are future features that will be implemented as an in-field upgrade of the camera. Visit our web page for current updates of camera features or contact us with your specific needs.

## Peripheral control

Dragonfly allows control of peripherals such as lighting, actuators, focus and zoom lenses etc. Software for controlling outputs is under development. Some of the features that may be available are output control relative to the CCD acquisition timing.

## Camera parameter control

Host software provided with the Dragonfly camera allows manual and automatic control of the camera parameters, such as the CCD integration time and the gain. In the color version the software allows control of saturation and white balance.

[www.ptgrey.com](http://www.ptgrey.com)



Point Grey Research is a product engineering and technology company founded in January 1997. The company designs and develops computer vision technologies for commercial applications worldwide. Point Grey Research technology has been successfully used in people tracking, object tracking, modeling and dimensioning, mobile robotics, mining and many other computer vision applications.

# IEEE-1394 digital camera

## Preliminary Camera Specifications:

Imaging Device	1/3 Sony CCD Color or B&W VGA 640x480 or 1024x768 formats HAD image sensor with square pixels Progressive scan
Supported frame rates:	30, 15, 7.5, 3.75 FPS (with the 640x480 sensor)
Supported formats:	B&W sensor: 8-bit Mono Color sensor: 8-bit Bayer tiled image (color space conversion done on the host computer)
Digital camera specification:	Version 1.30
Signal to noise ratio:	50dB or better at minimum gain
Connector:	6-pin IEEE-1394
Power:	Through IEEE-1394, less than 1.5W
Shutter:	Auto/Manual (1/16,000 to 1/30 second @ 30 Hz). Please enquire about longer shutter speeds
Gain:	Auto/Manual (0 - 34dB, 0.035dB resolution)
Synchronization:	Less than 20µs
External trigger:	DCAM 1.30 trigger Mode_0, see diagram
Lens focal length:	4, 6 and 8mm focal length, 12mm micro lenses Enquire about additional focal lengths C-C/S mount lens holders available
Footprint:	2.5 X 2 see diagram

# dragonfly

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## Package includes:

- ✓ Dragonfly camera
- ✓ 4.5 meter, 6-pin, IEEE-1394 cable
- ✓ IEEE-1394 OHCI PCI Interface card
- ✓ 4, 6 and 8mm focal length, 12mm micro lenses, or a C/CS mount lens holder
- ✓ Tripod mounting bracket
- ✓ Dragonfly camera driver
- ✓ Image acquisitions software

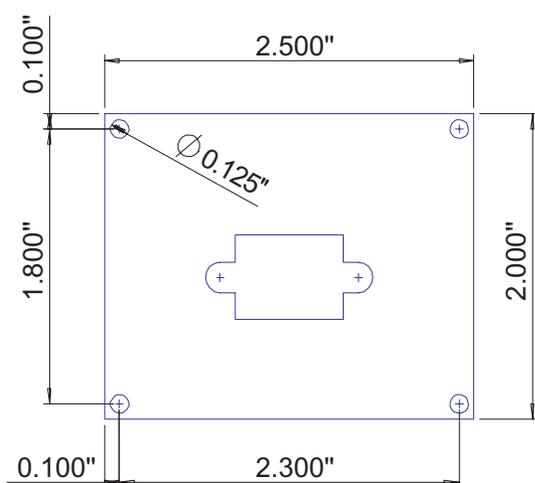
## System requirements:

- ✓ Intel Pentium II or better
- ✓ Windows 98SE or Windows 2000

## External Trigger

Dragonfly camera implements the External trigger feature as specified in the IEEE-1394 Digital Camera Specification Version 1.30.

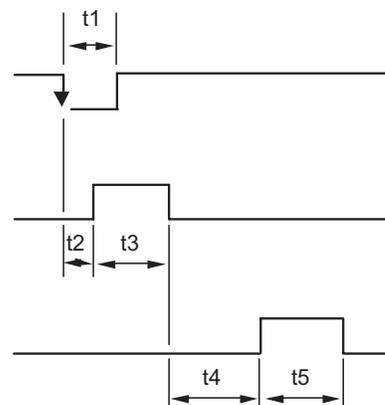
## Dimensions



External trigger

Integration time

Video packet



- t1: min 1 µs
- t2: less than 63 µs
- t3: integration time
- t4: 1 ms
- t5: 30 ms (240 packets) (Mode\_5, 30fps)

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305-1847 West Broadway, Vancouver, B.C., Canada V6J 1Y6  
T: 604-730-9937 F: 604-732-8231 [www.ptgrey.com](http://www.ptgrey.com)